TASTY, CONVENIENT, NUTRITIONALLY BALANCED FOOD COMPOSITIONS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application Serial No. 60/196,628 filed on Apr. 12, 2000, in the name of Prosise et al.

FIELD OF THE INVENTION

[0002] The present invention relates to tasty, convenient, nutritionally balanced foods that offer an alternative to appealing but unhealthy foods. Processes for making tasty, convenient, nutritionally balanced foods and methods of using said foods are also disclosed.

BACKGROUND OF THE INVENTION

[0003] It is common for foods to be convenient and tasty but unhealthy, like candy bars, cheese crackers, and similar "junk foods"; inconvenient to prepare or perishable but nutritious, like home cooked meals; or nutritious and convenient but unappealing like health foods. Unfortunately, many consumers do not have the time to obtain and prepare the correct mix of foods that will provide the balanced nutrition that their bodies require. Instead, many consumers resort to health foods, but soon find themselves replacing these unappealing foods with "junk foods".

[0004] Although "junk foods" are appealing, they have a negative impact on the physical and mental health of consumers. In particular, it is appreciated that the high fat and calorie load and low dietary fiber level of "junk foods" can contribute to obesity and many of the chronic diseases, such as coronary heart disease, stroke, diabetes, and certain types of cancer. The following list of food items highlights the significant fat content, caloric contribution from fat, and minimal dietary fiber content of many of these foods (Pennington, J., *Bowes & Church's Food Values of Portions Commonly Used,* 17th edition, 1998, Lippincott, Philadelphia).

Food Item	Serving Size (Grams)	Total Kcal	Grams Fat	% Kcal from Fat	Grams Fiber
Snickers Candy Bar	61	292	15	46.2	1.5
Nabisco Ritz Bits Crackers	30	160	9.0	50.6	1.0
Nabisco Peanut Butter Ritz Bits	31	150	8.0	48.0	1.0
Lance Cheese On Wheat Crackers	37	181	9.0	44.8	—
Lance Peanut Butter On Wheat Crackers	37	192	11	51.6	—

[0005] To summarize, consumers face the dilemma of choosing health or satisfaction when selecting a convenient food. Since many consumers prefer satisfaction over nutrition, the benefits of unappealing but nutritious foods often go unrealized. Thus, what is needed is at least one convenient, appealing food composition having a balanced nutritional profile.

[0006] Unfortunately, the development of nutritious, convenient, appealing foods has met with numerous technical obstacles. In particular, previous attempts at producing a ready-to-eat, appealing, nutritionally balanced food composition have resulted in products that have poor taste systems due to an overall poor organoleptic appeal and appearance. The following brief summary of technical challenges illustrate why the food industry has failed to provide the public with a tasty, ready-to-eat, nutritionally balanced food.

[0007] Convenient or ready-to-eat foods tend to be nutritionally unbalanced as they are high in fat and carbohydrates, and low in dietary fiber and protein. Decreasing the level of fat and carbohydrates in a ready-to-eat food, while increasing the level of dietary fiber and protein, is known to seriously compromise a food's taste system. In fact, the literature has noted that consumers have been complaining, even if they have not been fully articulating, "that something is missing" in their low-fat, low-calorie foods. According to the literature, that something may be an opioid stimulator as an opioid-releasing effect has been correlated to combinations of sugar and fat. (Adam Drewnowski, *Trends in Food Science & Technology,* April, 1992). Drewnowski noted that high-sugar, high-fat foods figure most heavily in food cravings and overeating. Naloxone administrations reduced the appeal of such foods in a study group of binge eaters. Conversely, Drewnowski cites clinical studies linking opiate addiction (to substances like opium and heroin) to sweet cravings. Thus, it is postulated that fully duplicating the sensation of fat alone may prove a chimera until other taste stimulating components or levels and combination of components are identified.

[0008] In addition to the challenges associated with reducing fat and sugar levels, it is known that increasing a ready-to-eat food's dietary fiber and protein levels results in the loss of the desirable product texture that consumers expect - this is especially true for snack foods. The loss of desirable texture typically results in products, such as high protein and fiber health bar snacks, that are described by consumers as having an unpleasant stickiness, grittiness or dryness. Instead of improving texture, current attempts to solve textural problems merely hide unpleasant textural characteristics. Attempted solutions include coating products with materials that are high in fat and sugar, increasing flavor levels or mixtures thereof. Unfortunately, these "fixes" are only temporary, as shortly after initial bite or product breakdown, the true nature of the product's texture becomes apparent. While the loss of textural quality is appreciated by those skilled in the art, the complex interactions that give rise to poor textures are little understood. As a result, a solution to the textural problems associated with convenient, nutritionally balanced foods has remained elusive.

[0009] In addition to textural problems, it is appreciated that dietary fibers and proteins can produce objectionable off-flavors in the finished products. For example, dietary fiber sources, such as sugar beet fiber, and protein sources, such as soy flour, can cause objectionable off-flavors. Generally, off-flavors arising from components of a food are cumulative. However, with high levels of certain components, such as added protein and fibers, the resulting combination of off-flavors and poor textures may synergistically detract from a food's appeal.

[0010] Finally, due to the low fat and carbohydrate levels and higher protein and fiber levels of nutritionally balanced